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(56) Documents Cited

GB 1587283 A	GB 1234789 A	GB 0867758 A
GB 0794840 A	GB 0700479 A	US 5032693 A
US 4893788 A	US 4263477 A	US 4216943 A
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(58) Field of Search  
UK CL (Edition N ) E1D DF109 DF118, H2C CEB CEX  
INT CL<sup>6</sup> A01K, E04H, H01B  
On-line database Derwent W.P.I

**(54) Spacer for electric fencing**

(57) A spacer (10) for an electric fence (19) comprises a tube (11) of insulating material with two pigtail configurations defining eyes (12, 13) at each end through which electrically conducting wires (17, 18) can be threaded. The spacers are attached to fence posts (14) so that the length of the spacers are orthogonal to the fence posts. The posts may be those of an existing fence, and the electric barrier may be used for enclosing livestock.

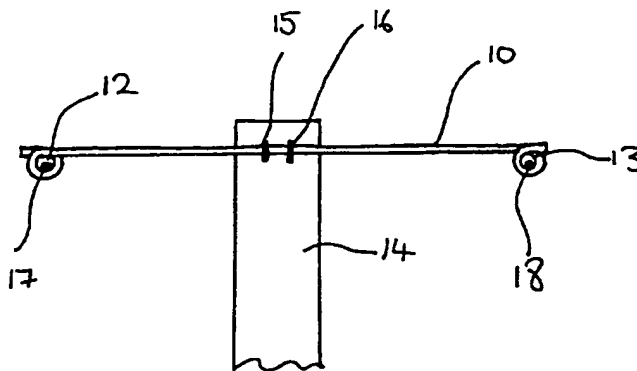


Fig 4

**At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.**

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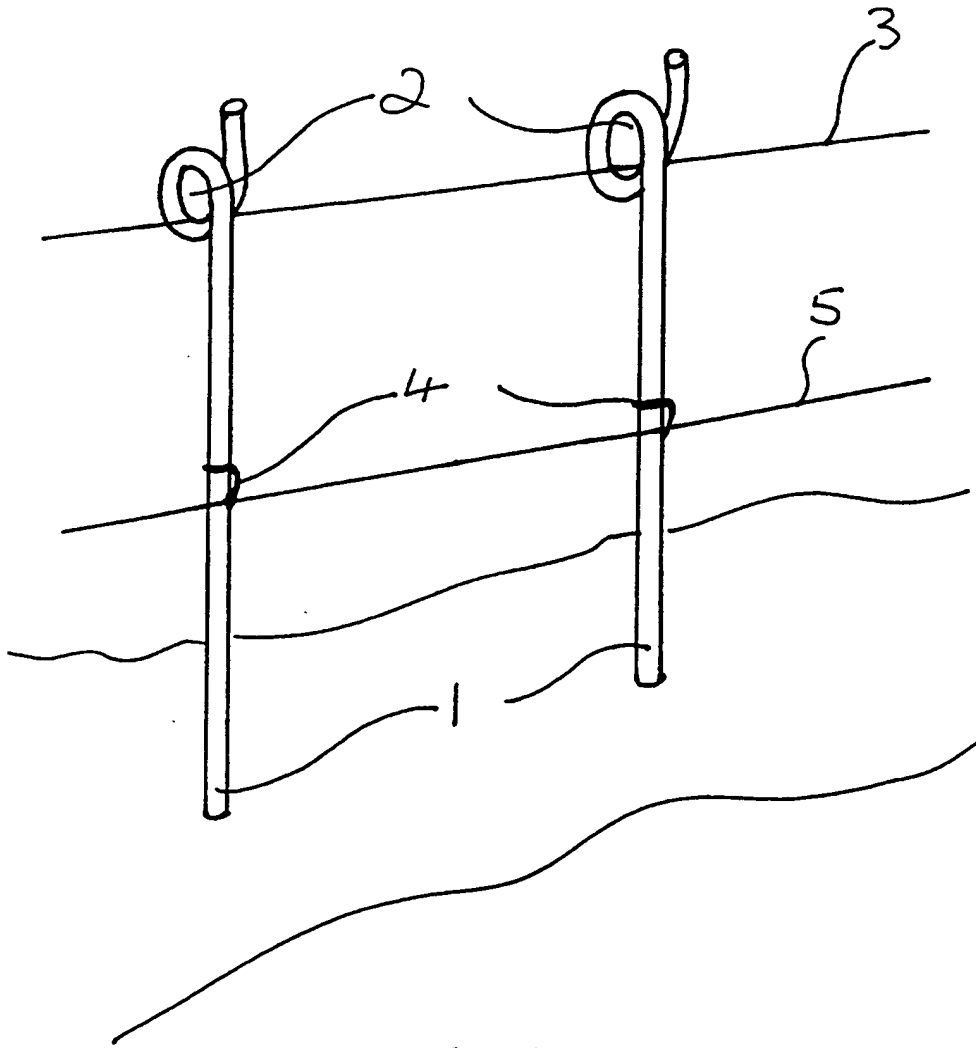


Fig 1

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Fig 2

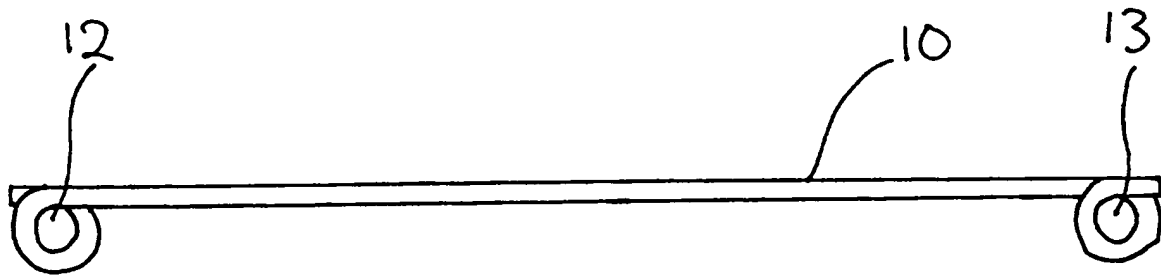
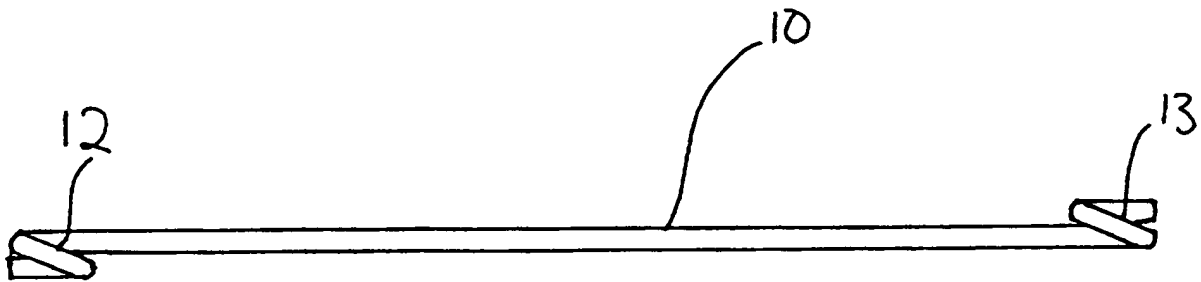


Fig 3

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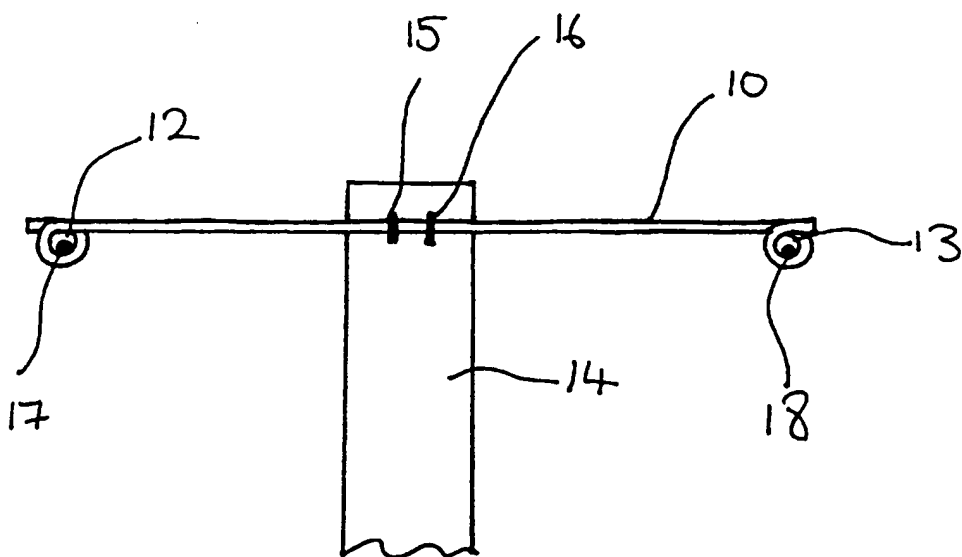
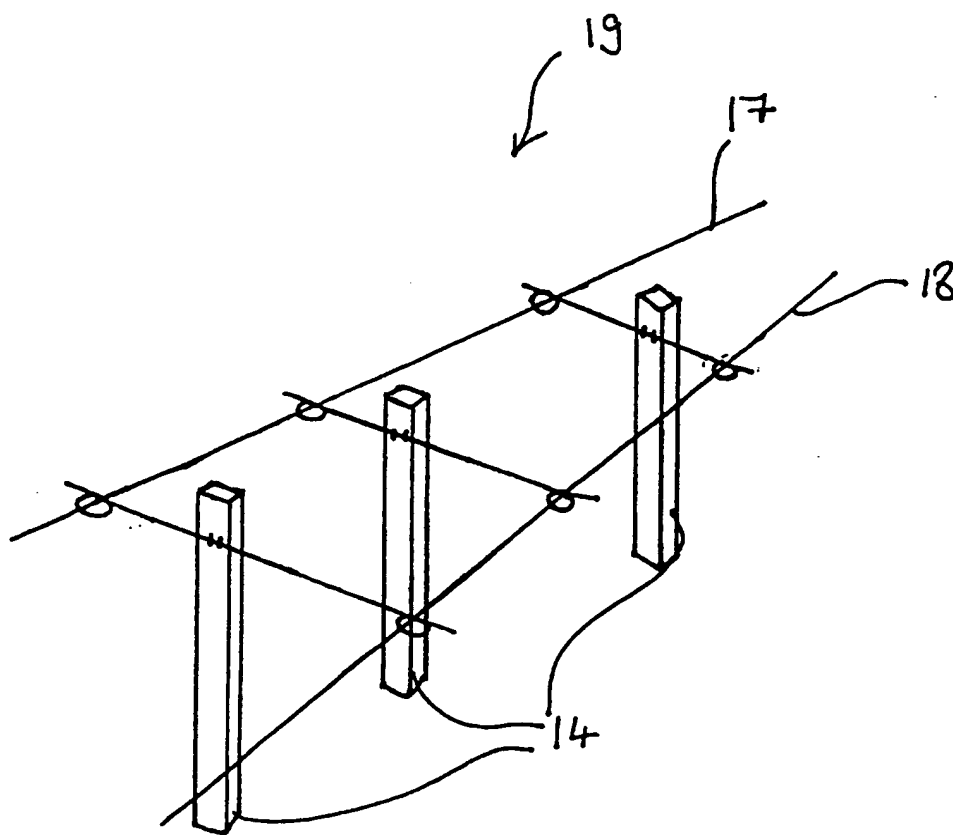


Fig 4

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Fig 5



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**ELECTRIC FENCE SPACER**

This invention relates to an spacer for an electric fence, and an electric fence incorporating such a spacer.

The use of electric fencing to enclose livestock within a defined area, for example to keep cows in a field, is well known.

Known electric fencing comprises one or more electrically conducting wires strung, horizontally, between a number of posts placed in the ground around the perimeter of the area to be enclosed. A known type of electric fencing is illustrated in Figure 1. Posts 1, made of an insulating material, have metal spikes (not shown) at their lower end for fixing the posts in the ground, and, at their opposite, upper end, a pigtail configuration defining an eye 2 through which an electrically conducting wire 3 may pass. The posts 1 may be provided with one or more nylon clips 4 along its height for suspending additional electrically conducting wires 5, these clips 4 being adjustable along the height of the post to allow the height of the additional wires 5 to be selected as required.

Although extremely effective in keeping livestock within the enclosure, these fences do have disadvantages. The posts have to be placed around the perimeter of the enclosure, and then

the electrically conducting wires attached, which is in addition to any extra fencing, for example, post and rail fencing, which may already be in place or which may be required by the nature of the livestock to be enclosed. The height of the fence is limited by the height of the posts, which is, typically, around 92cm. Another disadvantage is that, although these posts are designed to be flexible, they may become damaged by large animals, or, for example, during a storm.

Insulating supports for conducting wires do exist but they typically comprise a metal support and a separate insulating pig tail part which is in contact with the conducting wire. A disadvantage of such supports is that there is a risk that the conducting wire can come into contact with the metal support which can lead to loss of charge. A further disadvantage is that the separate insulating pig tail part can become removed from the metal support again leading to loss of charge in the conducting wire. A further disadvantage of such metal supports with separate insulating pig tail parts is the additional cost of manufacture required to make and assemble two separate components.

According to the present invention, there is provided a spacer for an electric fence, the fence comprising a multiplicity of substantially vertical mounting posts and an electrical conductor suspended there between, the spacer comprising an

elongate body portion having suspension means provided at a point along the elongate body portion for suspending the electrical conductor therefrom such that, when the spacer is mounted on the post such that its elongate body portion is arranged substantially orthogonal thereto, and the electrical conductor suspended therefrom, the electrical conductor is located at a predetermined distance from the post. The suspension means may be provided at each end of the elongate body, and may be in the form of eyes through which the electrical conductor may be threaded. The body portion and the suspension means of the spacer are preferably made in the form of a single integrated component of a suitable insulating material. The spacer may be mounted on the posts so that the elongate body portion is substantially centrally located between the two eyes. A fence incorporating such a spacer would have the electrical conductor running substantially parallel to the path defined by the posts, but at an orthogonal distance from the fence posts. The posts may be those of an existing fence. This has the advantage of providing a fence with an electric barrier which may be provided on both sides of a fence, thereby strengthening the effectiveness of the fence, protecting an existing fence where the fence posts are those of an existing fence, and extending its life. There is greater rigidity against such things as storm damage and vandalism, a fast erection time, and greater flexibility with respect to the height.



The invention will now be described, by way of example only, with reference to the accompanying drawings, of which:

Figure 1 is a perspective view of an electric fence of the prior art;

Figure 2 is a side view of an electric fencing spacer in accordance with the invention;

Figure 3 is a plan view of the spacer of Figure 2;

Figure 4 is a side view of the spacer of Figure 2 attached to a fence post; and

Figure 5 is a perspective view of a fence incorporating the spacer of Figures 2 to 4.

An spacer 10 comprises a tube 11 of an insulating plastics material, for example, UV stabilised PVC, which has, at each end, a pigtail configuration defining two eyes 12,13. The spacer 10 will preferably be formed as a single integral part which is made by a two stage process. Firstly the body portion 10 is extruded and secondly the pigtail configurations 12 and 13 are formed at each end.

In use, the spacer 10 is attached, so that its length is substantially orthogonally to a substantially vertically

placed fence post 14, at the required height up the fence post 14 and such that the fence post 14 is substantially equidistant between the two eyes 12,13. The spacer 10 is attached using two U-shaped fencing staples 15,16. The spacer 10 can also be attached on to the top of the fence post 14, rather than on its side.

The fence post 14 is a post as used in conventional fencing, for example made of wood.

Electrically conducting wires 17,18 can then be threaded through either, or, more usually, both eyes 12,13.

To provide an electric fence 19, a number of fence posts 14 are fixed in the ground, at suitable distances, to define an area which is to be protected. Spacers 10 are then fixed to the posts as described above, and electrically conducting wires 17,18 threaded through the eyes 12,13, from post to post so that the wires 17,18 run substantially parallel to the path defined by the fence posts 14, at the height of the spacers 10, thereby providing a pair of substantially parallel electrically conducting wires spaced apart by the distance between the eyes, as illustrated in Figure 5.

One or more pairs of electrically conducting wires can be provided underneath the first pair of wires 17,18, if required.

The fence posts 14 can also be used to provide support for other fencing e.g. wooden rails, chicken wire or barbed wire, or, ideally, the spacers 10 can be fixed to existing posts of an existing fence.

As will be understood by a person skilled in the art, various modifications are possible within the scope of the present invention. For example, the spacers can be made from any suitable insulating material, the electrically conducting wires can be any suitable electrical conductor, for example ropes or tape, which can be run from spacer to spacer as described above, and the spacer can be provided with other means of suspending the electrically conducting wires apart from eyes. Also, only one eye, or other suspension means, can be provided.

## CLAIMS

1. A spacer for an electric fence, the fence comprising a multiplicity of substantially vertical mounting posts and an electrical conductor suspended there between, the spacer comprising an elongate body portion having suspension means provided at a point along the elongate body portion for suspending the electrical conductor therefrom such that, when the spacer is mounted on the post such that its elongate body portion is arranged substantially orthogonal thereto, and the electrical conductor suspended therefrom, the electrical conductor is located at a predetermined distance from the post.
2. A spacer according to Claim 1, wherein the suspension means is provided at the end of the elongate body portion.
3. A spacer according to Claim 1 or Claim 2 comprising first and second suspension means for suspending respective first and second electrical conductors therefrom.
4. A spacer according to any preceding claim, wherein the suspension means is an aperture provided in the elongate body portion through which the electrical conductor may be threaded to suspend the electrical conductor therefrom.
5. A spacer according to Claim 4 wherein the elongate body

portion is a flexible tube having a pigtail configuration at one or both ends defining the aperture.

6. A spacer according to any preceding Claim, wherein the spacer is made of a single integral part of an insulating material.

7. An electric fence comprising a multiplicity of substantially vertical posts provided at predetermined spacings, and at least one electrical conductor suspended there between, the fence further comprising spacing means mounted on the posts at a predetermined height, the spacing means comprising an elongate body portion having suspension means provided at a point along its length for suspending the electrical conductor therefrom, the spacing means being mounted on the post such that the post is substantially orthogonal to the length of the elongate body portion, such that when suspended from the spacing means, the electrical conductor runs substantially parallel to the path defined by the posts but at a distance therefrom.

8. An electric fence according to Claim 7, wherein the suspension means is provided at the end of the elongate body portion of the spacing means.

9. An electric fence according to Claim 7 or Claim 8, wherein the spacer comprises first and second suspension means

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for suspending respective first and second electrical conductors therefrom.

10. An electric fence according to Claim 9, wherein the spacers is mounted on the posts such that the post is located substantially equidistantly between the first and second suspension means.

11. An electric fence according to any of Claims 7 to 10, wherein the suspension means is an aperture provided in the elongate body portion through which the electrical conductor may be threaded to suspend the electrical conductor therefrom.

12. A spacer according to Claim 11 wherein the elongate body portion is a flexible tube having a pigtail configuration at one or both ends defining the aperture.

13. A spacer according to any of Claims 7 to 12, wherein the spacing means is made as a single integral part of an insulating material.

14. A spacer as hereinbefore described with reference to the accompanying Figures 2 to 5.

15. An electric fence as hereinbefore described with reference to the accompanying Figures 2 to 5.

<p style="text-align: center;">10</p> <p><b>Patents Act 1977</b>  <b>Examiner's report to the Comptroller under Section 17</b>  <b>(The Search report)</b></p>	<p><b>Applicati n number</b>  <b>GB 9423826.8</b></p>
<p><b>Relevant Technical Fields</b></p> <p>(i) UK Cl (Ed.N)      E1D (DF109, DF118) H2C (CEB, CEX)</p> <p>(ii) Int Cl (Ed.6)      A01K, H01B</p> <p><b>Databases (see below)</b>          (i) UK Patent Office collections of GB, EP, WO and US patent specifications.</p> <p><b>(ii) ON-LINE DATABASE - DERWENT WPI</b></p>	<p><b>Search Examiner</b>  <b>MR D LOVELL</b></p> <p><b>Date of completion of Search</b>  <b>18 JANUARY 1995</b></p> <p><b>Documents considered relevant following a search in respect of Claims :-</b>  <b>1-15</b></p>

**Categories of documents**

<b>X:</b> Document indicating lack of novelty or of inventive step.	<b>P:</b> Document published on or after the declared priority date but before the filing date of the present application.
<b>Y:</b> Document indicating lack of inventive step if combined with one or more other documents of the same category.	<b>E:</b> Patent document published on or after, but with priority date earlier than, the filing date of the present application.
<b>A:</b> Document indicating technological background and/or state of the art.	<b>&amp;:</b> Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X,Y	GB 1587283 (BRYCE)	X: 1, 2, 4, 7, 8, 11 Y: 12, 13
X,Y	GB 1234769 (PRICE)	X: 1, 2, 4-6 Y: 7, 8, 11-13
X,Y	GB 867758 (ELECTRO-MAGNETIC PRODUCTS)	X: 1, 2, 4, 7, 8, 11 Y: 12, 13
X,Y	GB 794840 (SEEBOHM)	X: 1, 2, 4, 7, 8, 11 Y: 12, 13
X,Y	GB 700479 (WOLSELEY)	X: 1, 2, 7, 8 Y: 13
X,Y	US 5032693 (LANGLIE)	X: 1, 2, 7, 8 Y: 13
X,Y	US 4893788 (CHAVE)	X: 1, 2, 4, 7, 8, 11 Y: 12, 13

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

**Patents Act 1977**  
**Examiner's report to the Comptroller under Section 17**  
**(The Search report)**

**Application number**  
**GB 9423826.8**

**Continuation page**

Category	Identity of document and relevant passages		Relevant to claim(s)
X,Y	US 4216943	(POPE)	X: 1, 2, 4, 7, 8, 11 Y: 12, 13
X,Y	US 4263477	(WILSON)	X: 1, 2, 5-8, 12 Y: 13
X,Y	US 3801731	(HANSEN)	X: 1, 2, 5-8, 12 Y: 13